

**Abstract of the Disclosure**

Water molecules, preferably in the form of steam or water vapor, are introduced into a plasma. The plasma causes the water molecules to dissociate into their constituent  
5 molecular elements of hydrogen and oxygen. To prevent recombining of the constituent molecular elements, the hydrogen and oxygen are separated from each other. Various devices may be employed to effect this separation. Once separated, the molecular components are prevented from recombining with each other or with other elements by using standard separation techniques normally employed for separating dissimilar  
10 gaseous species.